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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/463,740	06/05/95	VON BORSTEL	R 1331-143

HM22/0802

EXAMINER

NIXON AND VANDERHYE  
1100 NORTH GLEBE ROAD  
8TH FLOOR  
ARLINGTON VA 22201

OWENS JR, H

ART UNIT	PAPER NUMBER
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1623

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DATE MAILED:

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Please find below and/or attached an Office communication concerning this application or proceeding.

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UNITED STATES DEPARTMENT OF COMMERCE  
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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Paper No. 20

Application Number: 08/463,740

Filing Date: June 5, 1995

Appellant(s): von Borstel et al

Leonard C. Mitchard  
For Appellant

**EXAMINER'S ANSWER**

This is in response to appellant's brief on-appeal filed September 17, 1999.

**(1) *Real Party in Interest***

A statement identifying the real party in interest is contained in the brief.

**(2) *Related Appeals and Interferences***

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The brief does not contain a statement identifying the related appeals and interferences which will directly affect or be directly affected by or have a bearing on the decision in the pending appeal is contained in the brief. Therefore, it is presumed that there are none. The Board, however, may exercise its discretion to require an explicit statement as to the existence of any related appeals and interferences.

**(3) *Status of Claims***

The statement of the status of the claims contained in the brief is correct.

**(4) *Status of Amendments After Final***

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) *Summary of Invention***

The summary of invention contained in the brief is correct.

**(6) *Issues***

The appellant's statement of the issues in the brief is correct.

**(7) *Grouping of Claims***

Appellant's brief includes a statement that claims 41 and 58-67 do not stand or fall together and provides reasons as set forth in 37 CAR 1.192(c)(7) and (c)(8).

**(8) *ClaimsAppealed***

The copy of the appealed claims contained in the Appendix to the brief is correct.

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**(9) Prior Art of Record**

The following is a listing of the prior art of record relied upon in the rejection of claims under appeal.

4,613,604	CHU et al.	9/1986
von Borstel et al.	WO 89/03837.	5/1989.

**(10) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

Claims 41 and 58-67 rejected under 35 U.S.C. 103. Set forth below and in paper nos.

6 and 8.

Claims 41 and 58 - 67 are rejected under 35 U.S.C. § 103 as being unpatentable over Von Borstel et al. (WO 89/03837) in view of Chu et al. (4,613,604).

The claims are directed to a composition comprising acylated uridine, cytidine, or orotic acid and an inhibitor of uridine phosphorylase.

Von Borstel et al. discloses compositions comprising acylated uridine, cytidine, or orotic acid which are useful as prodrugs for increasing serum and intracellular free uridine (claims 30 - 39). Von Borstel et al. does not mention the combined use of said acylated pyrimidine nucleosides and an inhibitor of uridine phosphorylase. However, Chu et al. does teach the use of uridine phosphorylase inhibitors in order to potentiate the chemotherapeutic effect of pyrimidine nucleoside analogs such as 5-fluorouridine (column 2, lines 36 - 59) by elevating the levels of free uridine. Therefore, it would have been obvious to the person of

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ordinary skill in the art at the time of the invention to have combined the prodrugs of uridine disclosed by Von Borstel et al. with the uridine phosphorylase inhibitors taught by Chu et al. for the purpose of elevating even higher the free uridine levels in the serum and inside the cells. Thus, the claimed compositions are prima facie obvious in the absence of clear and convincing evidence to the contrary.

***(11) Response to Argument***

The claims are directed to a composition comprising acylated uridine, cytidine, or orotic acid and an inhibitor of uridine phosphorylase.

Applicant argues that one of skill in the art would not be motivated to combine the teachings of Chu et al. with Von Borstel et al. because the focus of Chu et al. is to prevent the cleavage of the nucleoside analog to a less effective material, and not to elevate uridine levels. Von Borstel et al. discloses compositions comprising acylated uridine, cytidine, or orotic acid which are useful as prodrugs for increasing serum and intracellular free uridine (claims 30 - 39). Thus a composition containing three of the 4 compounds of the invention have been set forth in the prior art and thus the issue is clearly why one of skill in the art would have been motivated to combine a uridine phosphorylase inhibitor with the composition of the prior art given that Von Borstel et al. does not mention the combined use of said acylated pyrimidine nucleosides and an inhibitor of uridine phosphorylase. However, as applicant acknowledges on p.8 of the appeal brief filed 9-17-99, a specific object of the Chu et al. invention is to provide novel uridine phosphorylase inhibitors which reduce phosphorolytic

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degradation of a uridine derivative. As also acknowledged by applicant, (on p.19 of the specification, 3rd paragraph) uridine is incorporated into cellular nucleotide pools by phosphorylation at the 5' position; thus compounds which reduce phosphoryltic degradation of uridine derivatives would clearly increase or maintain the amount of uridine available for incorporation into the cellular nucleotide pool. Chu et al. teaches that uridine phosphorylase inhibitors reduce the phosphoryltic degradation of uridine to uracil (see column 1, lines 9-20 of Chu et al) clearly providing the motivation to use uridine phosphorylase inhibitors in a composition with other compounds useful for increasing free uridine. The fact that this antidegradative effect is demonstrated in tumor cells in Chu et al. does not diminish the correlation (established by the state of the art and the prior art) between maintaining phosphorylation of a uridine derivative and the availability of free uridine within the cellular nucleotide pool.

The test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. Given that Von Borstel et al. sets forth a composition for increasing serum and intracellular free uridine, one of skill in the art would have a reasonable expectation of success that a further component, specifically a uridine phosphorylase inhibitor which has been shown in the prior art to reduce the degradation of uridine to uracil, would be advantageous as

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an additional component for increasing or at the very least maintaining the availability of free uridine. Thus, the claimed compositions are prima facie obvious in the absence of clear and convincing evidence to the contrary.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Howard Owens whose telephone number is (703) 306-4538 . The examiner can normally be reached on Mon.-Fri. from 8:30 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the Primary Examiner signing this action, Gary Geist can be reached on (703) 308-1701. The fax phone number for this Group is (703) 308-4556.

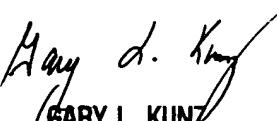
Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Group receptionist whose telephone number is (703) 308-1235.

Howard Owens

Group 1623



GARY GEIST  
SUPERVISORY PATENT EXAMINER  
TECH CENTER 1600



GARY L. KUNZ  
SUPERVISORY PATENT EXAMINER  
TECH CENTER 1600

Conferee